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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,542	10/18/2001	Tsuneaki Ohashi	782 192	7788
25 191	7590	10/08/2003	EXAMINER	
Burr & Brown PO BOX 7068 SYRACUSE, NY 13261-7068			VO. HAI	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/982,542	OHASHI, TSUNEAKI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Hai Vo	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 August 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2 and 10-16 is/are allowed.
- 6) ☒ Claim(s) 1 and 3-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Matsubara (US 6,142,386).
4. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mehrotra et al (US 5,382,273).
5. Claims 1, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Komatsu et al (US 5,744,410) substantially as set forth in the Office Action mailed on 04/22/2003.
6. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being patentable over Matsubara (US 6,142,386) as applied to claim 1 above, further in view of Yamada et al (US 4,954,232).

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7. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being patentable over Mehrotra et al (US 5,382,273) as applied to claim 1 above, further in view of Yamada et al (US 4,954,232).
8. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu (US 5,744,410) as applied to claim 1 above, further in view of Yamada et al (US 4,954,232).

### ***Response to Arguments***

9. The art rejections over Matsubara have been maintained for the following reasons.  
  
In the first place, Applicant argues that Matsubara's silicon nitride cutting insert is not identical to or even slightly different than the corrosion-resistive member recited in claim 1 due to the presence of  $Al_2O_3$  in the composition. The arguments are not commensurate in scope with the claims. Nothing specific about absence of  $Al_2O_3$  in the claimed corrosion resistive member has been included in the claims. Applicant further states that one skilled in the art would recognize that adding alumina would promote a glassy phase upon sintering. However, there is no evidence to support for such assertions. However, it appears that  $Al_2O_3$  as a sintering aid, was used with a minimum amount of 1% by weight so that the texture is densified and a glassy phase is reacted with carbon remaining in the compact to thereby decrease of the amount of the glassy phase (column 2, lines 50-60). Therefore, the presence of alumina in the composition would not promote the glassy phase upon sintering as argued by Applicant but rather decrease the glassy phase. Likewise, the crystal growth is greatly enhanced in accordance with the processing steps disclosed in Matsubara.

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Secondly, the arguments that Matsubara does not disclose or suggest the chemical resistance as well as the orientation indices of the cutting insert of Matsubara are not found persuasive. It appears that the cutting insert of Matsubara comprises the same composition as Applicant's corrosion resistive member. The composition includes silicon nitride, MgO, Al<sub>2</sub>O<sub>3</sub> and Yb<sub>2</sub>O<sub>3</sub> meeting the requirement of the claims (table 1). The silicon nitride sintered body has an open porosity of 0.02% by volume or less within the claimed range (column 2, line 34). It is not seen that the cutting insert of Matsubara would performed differently when exposed to a corrosive gas than the corrosion resistive member of the present invention. The same token is applied to the orientation indices. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990). Products of identical chemical composition can not have mutually exclusive properties.

10. The art rejections over Mehrotra have been maintained for the following reasons. In the first place, Applicant argues that differences in the processing steps and composition together would lead to the difference in the composite structure in respect to the orientation indices. However, nothing about the processing steps has been included in the claims to provide any distinction from the prior art. Further, Applicant contends that Mehrotra's processing steps would not achieve the claimed orientation indices of the present invention. Again, there is no evidence to support for Applicant's assertions. Secondly, the arguments that Mehrotra is using different composition to form the silicon nitride body are not found persuasive. It appears that the cutting insert of Mehrotra comprises the same composition as Applicant's

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corrosion resistive member. The composition includes silicon nitride, MgO, Al<sub>2</sub>O<sub>3</sub> and Yb<sub>2</sub>O<sub>3</sub> meeting the requirement of the claims (abstract). The silicon nitride sintered body has an open porosity of 0.2% by volume or less within the claimed range (abstract). It is not seen that the cutting insert of Matsubara would performed differently when exposed to a corrosive gas than the corrosion resistive member of the present invention. The same token is applied to the orientation indices. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990). Products of identical chemical composition can not have mutually exclusive properties.

11. The art rejections over Komatsu have been maintained for the following reasons.

The examiner absolutely agrees that the thermal conductivity of 10 W/m.k is most likely a typo error because of the reasons argued by Applicant in the last full paragraph at page 16 of the amendment received on 07/22/2003. However, since claim 1 is unspecific about the thermal conductivity, Applicant's arguments with respect to the thermal conductivity are therefore not commensurate in scope with claim 1. It appears that the silicon nitride sintered body of Komatsu meets all the limitations as set out in the claims, i.e, the sintered body for use as a thyristor exhibiting high corrosion resistance to metals (column 2, line 8), having a porosity of at most 2.5% by volume within the claimed range (abstract), and made of the same composition: lanthanum, oxide of rare earth element (column 6, lines 16-18, table 10). It appears that the orientation indices vary dependent upon the kind of additives (paragraph [0061] of Applicants' specification). It is the examiner's position that the crystal orientation would be inherently present. This is in line with *In re Spada*, 15

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USPQ 2d 1655 (1990). Products of identical chemical composition can not have mutually exclusive properties.

Further, Applicant argues that Komatsu's silicon nitride body would not inherently have the claimed orientation indices because of the passage disclosed in Komatsu at column 8, lines 27-38. The examiner found it difficult to come to such a conclusion. The fact is that Komatsu's silicon nitride body has the ratio of a crystal phase formed of the liquid phase to the entire grain boundary phase is greater than 20% (abstract, table 1). Further, the orientation index indicates the degree of crystal growth from the amorphous to crystalline state. Likewise, it is clearly apparent that the greater the ratio the ratio of a crystal phase to the entire grain boundary phase, the more the crystal is oriented on the plane. Again, as discussed above, Komatsu's silicon nitride body exhibits high corrosion resistance to metals (column 2, line 8), having a porosity of at most 2.5% by volume within the claimed range (abstract), and made of the same composition: lanthanum, oxide of rare earth element (column 6, lines 16-18, table 10). It appears that the orientation indices are dependent upon the kind of additives (paragraph [0061] of Applicants' specification). The examiner therefore maintains that Komatsu's silicon nitride body would inherently have the claimed orientation indices.

### ***Double Patenting***

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214

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USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1, 3-9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2 of U.S. Patent No.

6,541,406. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims 1, 2 of U.S. Patent No. 6,541,406 read on the presently claimed subject matter except the orientation indices. However, since the silicon nitride sintered material of U.S. Patent No. 6,541,406 has the porosity and thermal conductivity within the claimed ranges and made of the same composition as that of the present invention. It is the examiner's position that the orientation indices would be inherently present. Products of identical chemical composition can not have mutually exclusive properties. *In re Spada*, 15 USPQ 2d 1655 (1990).

#### ***Allowable Subject Matter***

14. Claims 2, 10-16 are allowed. None of the prior art discloses or suggests a corrosion resistive member set forth in claim 1 wherein the total content of elements in Group 1a and Groups 4a-3b of the Periodic Table in the silicon nitride sintered body is lower than 50 ppm by weight.

#### ***Conclusion***



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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (703) 605-4426. The examiner can normally be reached on M,T,Th, F, 8:30-6:00 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

HV

  
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